



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,968	02/06/2004	Paul D. Shirley	MIO 0112 PA/40509.272	7341
23368 7590 01/25/2008 DINSMORE & SHOHL LLP ONE DAYTON CENTRE, ONE SOUTH MAIN STREET SUITE 1300 DAYTON, OH 45402-2023			EXAMINER EDWARDS, LAURA ESTELLE	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 01/25/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/773,968

Applicant(s)

SHIRLEY, PAUL D.

Examiner

Laura Edwards

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 21-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Election/Restrictions

Applicant's election of Group I in the reply filed on 11/5/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

The disclosure is objected to because of the following informality: On page 8, line 13, please correct the typographical error, "laye2".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 and 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuyama (US 2002/0176936).

Matsuyama provide a resist application device comprising a rotatable substrate support (60); a resist dispenser (82) configured to deposit resist onto a substrate positioned on said support; a control fluid supply (84) effecting localized change in a rate of evaporation of said deposited resist, the control fluid supply comprising a pressure source (air or inert gas); a conduit (see right of Fig. 4); and a discharge orifice (85) in fluid communication with said pressure

source through said conduit, said discharge orifice configured to impart a control fluid onto a localized portion of said deposited resist; and a controller (80) cooperative with said control fluid supply such that said control fluid supply varies the placement of said control fluid onto said deposited resist to effect a substantially uniform thickness layer thereof (see Figs. 4+).

With respect to the use of plural fluid dispensing nozzles, the use of plural outlets (85) defines plural nozzles.

With respect to the positioning of the nozzles, an arm (69) enables the fluid dispensing nozzles to be positioned as desired with respect to the surface of the substrate.

With respect to claim 5, see controller (80) with pressure sensor for sensing parameter of pressure with respect to the control fluid as evidenced by [0049].

With respect to claims 8-10, see [0057].

With respect to claims 12 and 13, the arm (69) enables all nozzles of the solution dispenser and fluid supply to move relative to the substrate.

With respect to claims 14, 16, and 20, the application device is enclosed in the housing (17a) and is environmentally controlled as evidenced by [0057].

Claims 1-7, 12-15, and 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tateyama et al (US 5,919,520).

Tateyama et al provide a resist application device comprising a rotatable substrate support (10); a moveable resist supply (BL) configured to deposit resist onto a substrate positioned on said support; a control fluid supply (AL) effecting localized change in a rate of evaporation of said deposited resist, said control fluid supply comprising a pressure source (i.e.,

pump); a conduit (24); and a discharge orifice (22a) in fluid communication with said pressure source through said conduit, said discharge orifice configured to impart a control fluid onto a localized portion of said deposited resist; and a controller (CPU, 67) cooperative with said control fluid supply such that said control fluid supply varies the placement of said control fluid onto said deposited resist to effect a substantially uniform thickness layer thereof (see Figs. 2-5).

With respect to claim 3, control fluid nozzles include nozzle (AL) and nozzle (80).

With respect to the positioning of the nozzles, an arm (40) enables all nozzles to be positioned as desired with respect to the surface of the substrate.

With respect to claim 5, see controller (67) with height sensor (66) for sensing parameter of distance of the nozzles with respect to the surface of the treated substrate.

With respect to claims 12 and 13, the arm (40) enables all nozzles of the solution dispenser and fluid supply to move relative to the substrate.

With respect to claims 14-18, the application device is enclosed in a housing or module as evidenced by Fig. 7 wherein processing of the substrate takes place. Air can be used in nozzle (80).

With respect to claim 19, control fluid can be supplied via nozzle (AL) using nitrogen.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama (US 2002/0176936) in view of Chappa et al (US 7,077,910).

Matsuyama provide a resist application device as mentioned above but is silent concerning the operation of the coating device in an automated mode and manual mode to allow the operator input in the latter mode. However, it was known in the coating art, at the time the invention was made, to provide for manual or automated operation of coating parameters in a coating device with the manual operation enabling operator input as evidenced by Chappa et al (col. 10, lines 51-62). In light of the teachings of Chappa et al, it would have been obvious to one of ordinary skill in the art to provide an automated mode and manual mode of control in the device of Matsuyama to allow for ease of operation of the coating device with or without the need of an operator.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateyama et al (US 5,919,520) in view of Matsuyama (US 2002/0176936).

The teachings of Tateyama have been mentioned above but Tateyama et al fail to teach or suggest humidity or temperature control. However, it was known in the art at the time the invention was made, to provide humidity and/or temperature control in airspace adjacent the wafer chuck to control the environment about the substrate during processing as evidenced by Matsuyama [0057]. It would have been obvious to one of ordinary skill in the art to provide humidity and/or temperature control in airspace adjacent the wafer chuck as taught by Matsuyama in the device of Tateyama et al in order to control the environment about the substrate during processing to provide for uniform treatment including coating of the substrate.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tateyama et al (US 5,919,520) in view of Chappa et al (US 7,077,910).

Tateyama et al provide a resist application device as mentioned above but is silent concerning the operation of the coating device in an automated mode and manual mode to allow the operator input in the latter mode. However, it was known in the coating art, at the time the invention was made, to provide for manual or automated operation of coating parameters in a coating device with the manual operation enabling operator input as evidenced by Chappa et al (col. 10, lines 51-62). In light of the teachings of Chappa et al, it would have been obvious to one of ordinary skill in the art to provide an automated mode and manual mode of control in the device of Tateyama et al to allow for ease of operation of the coating device with or without the need of an operator.

Conclusion


Application/Control Number:
10/773,968
Art Unit: 1792

Page 7

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Edwards whose telephone number is (571) 272-1227. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Laura Edwards
Primary Examiner
Art Unit 1792

Le
January 22, 2008